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10/521,490	01/18/2005	Yutaka Saitou	37395	6965

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PEARNE & GORDON LLP  
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CLEVELAND, OH 44114-3108

EXAMINER
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YOUNG, JANELLE N

ART UNIT	PAPER NUMBER
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2618

MAIL DATE	DELIVERY MODE
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06/20/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

## Office Action Summary

**Application No.**

10/521,490

**Applicant(s)**

SAITOU ET AL.

**Examiner**

Janelle N. Young

**Art Unit**

2618

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 21 September 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-22 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 January 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 1, 4-5, and 10-11 have been considered but are moot in view of the new ground(s) of rejection.

What Krenz does not explicitly teach is a second antenna provided in the second/lower casing switching between dipole and monopole.

However Chatzipetros teaches a first and second portions and of the second antenna are inductively coupled together between the flap and the substrate. Diversity is maintained with the flap open or closed as well as with the flap removed from the handset (Fig. 1 and Abstract of Chatzipetros) and a first upper casing (Fig. 1:108 of Chatzipetros); which reads on claimed first casing; and a second lower casing (Fig. 1:110 of Chatzipetros); which reads on claimed second casing (Abstract; Col. 1, line 66-Col. 2, line 61; Col. 3, lines 13-42; Col. Col. 3, line 66-Col. 4, line 14; and Col. 4, lines 29-40 of Chatzipetros);

It would have been obvious to one of ordinary skill of the art at the time the invention was made to incorporate the two antennae for a communication device, as taught by Chatzipetros, in the radiotelephone of Krenz, because Krenz already teaches developing an antenna that functions efficiently when the movable housing element is in the first position and in the second position. (Abstract and Col. 1, lines 13-50 of Krenz).

The motivation of this combination would be to provide an antenna integrated into an extendible portion of the radiotelephone's housing, as taught by Krenz in

Abstract, because there is a need for an antenna that can be incorporated into a communication device that provides an improved interconnect between the flap and the transceiver in order to reduce assembly time and cost in the factory. The incorporation of antennae with the mobile terminal should further provide operation in both an opened and closed flap position. Additionally, a handset not having a flap and providing diversity would be of benefit to the user who does not desire a flap (Col. 1, lines 41-48 of Chatzipetros).

***Response to Amendment***

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krenz et al. (US Patent 5542106) and further in view of Chatzipetros (US Patent 5554996).

As for claim 1, Krenz et al. teaches a radiotelephone (Fig. 15:1; Fig. 24-24:35; Fig. 25-26:53; Fig. 27-28:56; Fig. 30:60; and Fig. 31:62 of Krenz) which reads on claimed portable radio device (Abstract and Col. 1, line 65-Col. 2, line 26 of Krenz), comprising:

a connection portion, connecting the first casing to the second casing are rotatably connected; which reads on claimed freely rotate (Col. 2, lines 14-27 of Krenz);

a first antenna element (Abstract; Col. 1, lines 6-9; and Col. 2, lines 28-51 of Krenz);

a conductor element, provided in the second casing to form a dipole antenna together with the first antenna element (Col. 2, line 28-Col. 3, line 22 of Krenz); and

a feed point; which reads on claimed feeding portion, having one end electrically connected to the first antenna element and the other end electrically connected to the conductor element (Col. 2, lines 28-64 of Krenz).

What Krenz does not explicitly teach is a second antenna provided in the second/lower casing switching between dipole and monopole.

However Chatzipetros teaches a first and second portions and of the second antenna are inductively coupled together between the flap and the substrate. Diversity is maintained with the flap open or closed as well as with the flap removed from the handset (Fig. 1 and Abstract of Chatzipetros) and a first upper casing (Fig. 1:108 of Chatzipetros); which reads on claimed first casing; and a second lower casing (Fig. 1:110 of Chatzipetros); which reads on claimed second casing (Abstract; Col. 1, line 66-Col. 2, line 61; Col. 3, lines 13-42; Col. Col. 3, line 66-Col. 4, line 14; and Col. 4, lines 29-40 of Chatzipetros);

It would have been obvious to one of ordinary skill of the art at the time the invention was made to incorporate the two antennae for a communication device, as taught by Chatzipetros, in the radiotelephone of Krenz, because Krenz already teaches

developing an antenna that functions efficiently when the movable housing element is in the first position and in the second position. (Abstract and Col. 1, lines 13-50 of Krenz).

The motivation of this combination would be to provide an antenna integrated into an extendible portion of the radiotelephone's housing, as taught by Krenz in Abstract, because there is a need for an antenna that can be incorporated into a communication device that provides an improved interconnect between the flap and the transceiver in order to reduce assembly time and cost in the factory. The incorporation of antennae with the mobile terminal should further provide operation in both an opened and closed flap position. Additionally, a handset not having a flap and providing diversity would be of benefit to the user who does not desire a flap (Col. 1, lines 41-48 of Chatzipetros).

As for claims 2 & 3, Krenz et al. and Chatzipetros teach a radiotelephone; which reads on claimed portable radio device, wherein a plurality of first antenna elements are provided in the first casing; and the portable radio device further comprising an antenna-switching detection means (Col. 4, lines 29-55 of Chatzipetros); which reads on claimed switching portion which switches the plurality of first antenna elements so as to connect and/or to electrically connect to the feeding portion and/or the plurality of the first antenna elements are electrically connected to the conductor element, respectively portion (Col. 2, lines 28-64 of Krenz).

As for claims 4 & 5, Chatzipetros teaches a personal communication system which reads on claimed portable radio device, further comprising a half-wavelength element being electrically connected between at least one of the plurality of the first

antenna elements and the switching portion; wherein the switching portion selectively switches the plurality of the first antenna elements and the plurality of the half-wavelength elements so as to connect to the feeding portion (Col. 3, line 5-Col. 4, line 55 of Chatzipetros).

As for claim 6, Krenz et al. teaches a radiotelephone; which reads on claimed portable radio device, further comprising a plurality of impedance matching portions respectively corresponding to the plurality of the first antenna elements (Col. 2, lines 28-64 of Krenz).

As for claim 7, Chatzipetros teaches a personal communication system; which reads on claimed portable radio device, further comprising:

the antenna-switching detection means detects an antenna-switching request signal corresponding to opening or closing condition of the first upper and second lower casings; and the designator; which reads on claimed control portion, controlling the switching portion in accordance with the detected result of the casing opening and closing state detecting portion (Col. 3, line 22-Col. 4, line 55 of Chatzipetros).

As for claim 8, Chatzipetros teaches a personal communication system; which reads on claimed portable radio device, further comprising a designator, determining a receiving level of a transmission/reception circuit (RF circuit); which reads on claimed radio circuit portion, to control the switching portion so as to raise the receiving level (Col. 3, line 22-Col. 4, line 55 of Chatzipetros).

As for claim 9, Krenz et al. teaches a radiotelephone; which reads on claimed portable radio device, wherein the antenna element and the conductor element are

respectively formed in plate shapes, along the surface of the first casing and the second casing (Abstract and Col. 2, line 28 – Col. 3, line 8 of Krenz).

As for claim 10, Krenz et al. and Chatzipetros teach a radiotelephone which reads on claimed portable radio device, further comprising:

a circuit board, provided in the second casing and having a transceiver circuitry; which reads on claimed radio circuit, (Fig. 3; Abstract; and Col. 2, lines 51-64 of Krenz);

wherein the conductor element is formed in a ground pattern which is formed on the circuit board provided in the second casing ; wherein a ground of the radio circuit portion is electrically connected to the ground pattern (Abstract; Col. 1, lines 11-48 of Chatzipetros) and

wherein the feeding portion is provided in the radio circuit portion (Fig. 3; Abstract; and Col. 2, lines 51-64 of Krenz).

As for claim 11, Chatzipetros teaches a communications device; which reads on claimed portable radio device, further comprising:

a second antenna element, provided in the second casing near the connection portion (Fig 1 of Chatzipetros);

the antenna-switching detection means detects an antenna-switching request signal corresponding to opening or closing condition of the first upper and second lower casings; and the control portion, controlling the switching portion in accordance with the detected result of the casing opening and closing state detecting portion; and a switching portion, selecting and switching any one of the first antenna element and the second antenna element to a connection to a signal processing portion for performing a



signal process in accordance with the detected result of the casing opening and closing state detecting portion; and wherein when the first casing and the second casing are opened, the first antenna element and the conductor element form the dipole antenna; and wherein when the first casing and the second casing are closed, the second antenna element and the conductor element form a monopole antenna (Abstract; Col. 1, line 66-Col. 2, line 61; Col. 3, lines 13-42; Col. Col. 3, line 66-Col. 4, line 14; and Col. 4, lines 29-40 of Chatzipetros).

As for claim 12, Chatzipetros teaches a communications device; which reads on claimed portable radio device, wherein when the first casing and the second casing are opened, the switching portion selects the first antenna element; and wherein when the first casing and the second casing are closed, the switching portion selects the second antenna element (Abstract; Col. 1, line 66-Col. 2, line 61; Col. 3, lines 13-42; Col. Col. 3, line 66-Col. 4, line 14; and Col. 4, lines 29-40 of Chatzipetros).

As for claim 13, Chatzipetros teaches a radiotelephone; which reads on claimed portable radio device, further comprising:

a second antenna element provided in the second casing near the connection portion (Abstract and Col. 1, line 66-Col. 2, line 45 of Chatzipetros);

a receiving field intensity measuring portion, measuring the receiving field intensity of a signal received by the first antenna element or the second antenna element; and a switching portion, selecting and switching the antenna element having a higher receiving field intensity to a connection to a signal processing portion for performing a signal process in accordance with the measured result of the receiving

field intensity measuring portion (Fig. 4 and Col. 3, line 66-Col. 4, line 14 of Chatzipetros),

wherein the first antenna element has a first feeding point for electrically connecting to the conductor element; wherein the second antenna element has second feeding point for electrically connecting to the conductor element; and wherein the first feeding point and the second feeding point are provided at the diagonal positions of opposed sides when the first casing and the second casing are opened (Abstract; Col. 2, lines 34-45; and Col. 4, lines 15-29 of Chatzipetros).

As for claim 14, Krenz et al. teaches a radiotelephone; which reads on claimed portable radio device, further comprising:

a first matching portion, matching the impedance of the first antenna element to a prescribed value; and a second matching portion, matching the impedance of the second antenna element to a prescribed value (Col. 2, lines 28-64 and Col. 3, lines 23-42 of Krenz).

As for claim 15, Krenz et al. and Chatzipetros teach a radiotelephone; which reads on claimed portable radio device, further comprising:

a circuit board, provided in the second casing (Fig. 3; Abstract; and Col. 2, lines 51-64 of Krenz);

a plurality of feeding portions, feeding electric current to the antenna element and being separated to each other (Col. 3, line 5-Col. 4, line 55 of Chatzipetros);

a radio circuit, disposed in the circuit board (Fig. 3; Abstract; and Col. 2, lines 51-64 of Krenz); and

a switching portion, provided between the plurality of feeding portions and the radio circuit and selecting any one of the plurality of the feeding portions to connect the radio circuit (Col. 3, line 5-Col. 4, line 55 of Chatzipetros).

As for claim 16, Krenz et al. and Chatzipetros teach a radiotelephone; which reads on claimed portable radio device, further comprising:

a circuit board, provided in the second casing (Fig. 3; Abstract; and Col. 2, lines 51-64 of Krenz);

a radio circuit, disposed in the circuit board and electrically connected to the feeding portion (Col. 3, line 5-Col. 4, line 55 of Chatzipetros);

a ground portion, spaced from the feeding portion and connecting the antenna element to the circuit board ; and a switching portion, switching whether the ground portion is connected to the circuit board or the ground portion and the circuit board are opened (Abstract; Col. 1, lines 11-48 and Col. 3, line 5-Col. 4, line 55 of Chatzipetros).

As for claim 17, Chatzipetros teaches a radiotelephone; which reads on claimed portable radio device, wherein a plurality of ground portions are provided; and wherein the ground portions are disposed so as to be spaced apart in the end part of the antenna element connected to the second casing (Abstract; Col. 1, lines 11-48; and Col. 3, line 5-Col. 4, line 55 of Chatzipetros)

As for claim 18, Chatzipetros teaches a radiotelephone; which reads on claimed portable radio device, wherein the switching portion switches the ground portions respectively (Abstract; Col. 1, line 66-Col. 2, line 61; Col. 3, lines 13-42; Col. Col. 3, line 66-Col. 4, line 14; and Col. 4, lines 29-40 of Chatzipetros).

As for claims 19-20, Chatzipetros teaches a radiotelephone; which reads on claimed portable radio device, the connection portion has an electric conductivity; and wherein the ground portion and/or the feeding portion is electrically connected to the antenna element through the connection portion (Abstract; Col. 1, lines 11-48; and Col. 3, line 5-Col. 4, line 55 of Chatzipetros)

As for claim 21, Chatzipetros teaches a radiotelephone; which reads on claimed portable radio device, further comprising: a control circuit, controlling the switching portion in accordance with the level of a receiving signal received by the radio circuit (Abstract; Col. 1, line 66-Col. 2, line 61; Col. 3, lines 13-42; Col. Col. 3, line 66-Col. 4, line 14; and Col. 4, lines 29-40 of Chatzipetros).

As for claim 22, Krenz et al. teaches a radiotelephone; which reads on claimed portable radio device, wherein the first antenna element is an electric conductive frame forming a part of the first casing (Abstract and Col. 2, line 28-Col. 3, line 8 of Krenz).

### ***Conclusion***

3. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Garay (US Patent 4992799) invention relates to an antenna with a first and second portions that are rotatably movable with respect to each other. The antenna may be rotated from a first position to a second position and from the second position to the first position so that it operates as two antennas while in the first position and as a loop antenna while in the second position.

Pye et al. (US Patent 5337061) invention relates to antennae and in particular to high-performance antennae for use in hand-held and similar portable equipment such as hand-held radio telephones.

Vannatta et al. (US Patent 5649306) invention relates generally to antennas and, more particularly, to an antenna structure including at least two antennas that are switched into and out of the antenna structure.

Jager (US Patent 6067449) invention relates to apparatus and a method for controlling the selection of an antenna for a receiver having at least two antennas. In particular, but not exclusively, the present invention relates to antenna selection control circuitry in a communication system such as a radiotelephone network.

Ying et al. (US Patent 6307511) invention relates to a portable electronic communication device, comprising a first housing element, a second housing element, which is movable relative to the first housing element, and an antenna system for electromagnetic communication within at least two different frequency bands.

Bae (US Patent 6405061) invention relates generally to the field of wireless network access devices such as the mobile or cellular phone. The invention relates more specifically to use of a touch pad pointing device in the flip key pad cover of a mobile or cell phone to enable fingertip data entry as well as point and click (mouse) control of a cursor on a display portion of the phone.

4. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Janelle N. Young whose telephone number is (571) 272-

Art Unit: 2618

2836. The examiner can normally be reached on Monday through Friday: 8:30 am through 4:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Nay Maung can be reached on (571) 272-7882. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

JNY  
May 29, 2007

  
**NAY MAUNG**  
SUPERVISORY PATENT EXAMINER